

Lab No. 1

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1 Questions from Seciont 2.3

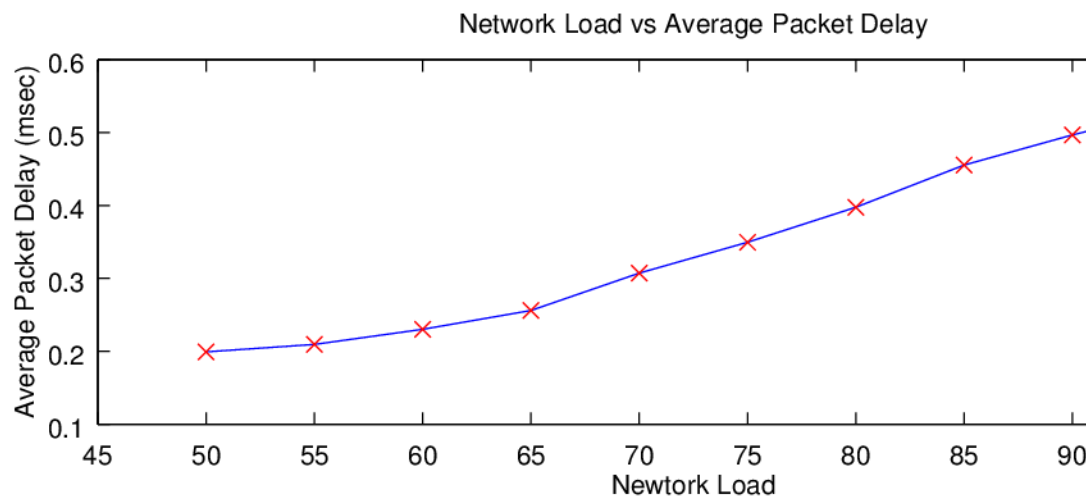
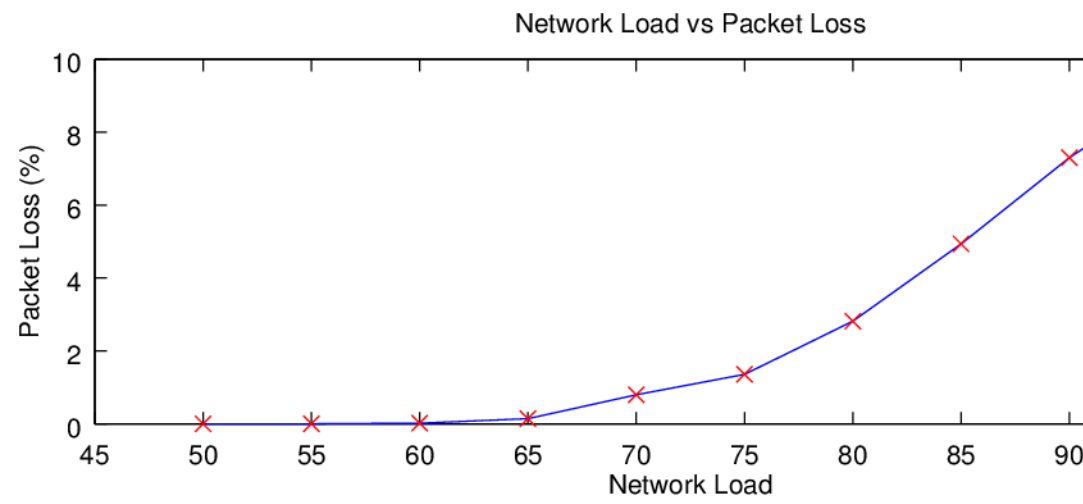
Problem 1 During the first iteration, the total load, L on node 0 is

$$L = \frac{R_{agg}}{LinkCap} = \frac{4 \times R_a}{1Mb/s} \quad (1)$$

$$= \frac{4 \times R_p \times F_{on}}{1Mb/s} = \frac{500Kb/s}{1Mb/s} = 0.5 \quad (2)$$

So, the total load on node 0 is 0.5. However, it is still possible to incur packet loss if all nodes transmit at once, which has a probability of $1/2^4$ or 6.25% chance of occurring.

Problem 2 I first observed packet loss occurring during the third iteration when the load on node0 was 60%. Even though the load is much less than one, if all nodes transmit at once then the node will have to deal with traffic incoming at 1.2Mb/s, which is over the link capacity.



Problem 3 & 5